VACCINE VIRUS

(FOR IMMUNIZATION AGAINST SMALL-POX)

PREPARED BY
LEDERLE ANTITOXIN LABORATORIES
NEW YORK

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VACCINE VIRUS

HISTORICAL: Small-pox is fatal to a very large proportion of those whom it attacks. It kills from 30 to 40 per cent. of its victims. The history of this loathsome disease can be traced back many centuries before Christ, always and in every way adding to the burden of human misery; attributed sometimes to the wrath of God and sometimes to the malignant condition of the atmosphere. It was spread by war, by the great Crusades, by religious pilgrimages and by commercial caravans. In the second, sixth, eleventh and twelfth centuries, it ravaged Europe, exacting a death toll of from 40 to 70 per cent. among primitive races, reaching its zenith in the eighteenth century. At this time, 10 per cent. of the total mortality in England was due to small-pox and one person in every five was horribly scarred. In Prussia, there were 25,000 deaths annually, and in France, 30,000. Following the discovery of Jenner, however, a rapid decrease in both morbidity and mortality as well as in the territorial extent of small-pox was noted.

Statistics show that small-pox has been unusually prevalent in the United States during the past 12 years—

the epidemic of 1901, 1902 and 1903 causing 4,658 deaths. In 1912, there were 22,076 cases of small-pox with 235 deaths officially recorded—the actual number being unquestionably twice as great, since the disease also occurred in States from which there has been no available information regarding the number of cases occurring in them. Every State in the Union supplied its quota of mortality, ranging from 1 to 30 per cent. It is estimated that 10 million people in this country are unvaccinated and sufficient foci remain to maintain small-pox in epidemic proportions as long as the public cares to tolerate it. During the seventeenth and eighteenth centuries, not a decade passed without the occurrence of fearful epidemics of small-pox. In England, from 7 to 9 per cent. of the deaths were due to it. It was one of the most destructive diseases, attacking persons in every station in life.

Before the introduction of vaccination, small-pox had become a permanent disease which never entirely ceased in any one year, and every third or fifth year became a great epidemic. In non-epidemic years, one-tenth of all mortality was from small-pox—in epidemic years one-half. Countless mortals were maimed by loss of sight. It is not uncommon to see in some cities in the Far East, 6 or 8 people totally blind being led by a blind leader, each with his hand on the other's shoulder. Of new-born children, one-third died of small-pox before their first year of life; while one-half died before their fifth year of life.

RESULTS OF VACCINATION: Professor Councilman of Harvard University remarked: "It is impossible to over-estimate the influence which it has exercised in furthering civilization and the physical and moral advance of the human race. Without vaccination and with the present inter-communication, small-pox would be pandemic, raging over the entire world."

Of the millions of immigrants arriving at Ellis Island each year, every one is vaccinated en route and rarely indeed with untoward consequences. Cuba with compulsory vaccination laws has not registered a case of small-pox since 1902. In observations made for 21 years on 4,000,000 people in Bohemia, it was discovered that the death rate among vaccinated persons was 5 per cent., while among those who had never been vaccinated, it was 29 per cent. Illustrations of this kind could be multiplied as almost countless authentic statistics exist.

Probably at no time in the world's history has the efficiency of vaccination as a preventive of small-pox been so conclusively and efficiently demonstrated as in the Philippine Islands since American occupancy. Evidence of its value is incontestable. During Spanish times, it was necessary each year during the dry season to erect in Manila a large temporary hospital to which the many hundreds of victims of small-pox could be taken, and a great majority of them died. During the past seven years, not one person, who had been successfully vaccinated within five years, died in Manila from small-pox. Since 1907, when the systematic vaccination was completed in the six provinces near Manila, which have an approximate population of 1,000,000 and which from time immemorial had an annual average mortality from small-pox of 6,000 people, not one person who had been successfully vaccinated has died of small-pox and only a few scattering cases of the disease have occurred.

PREPARATION: All Vaccine Virus produced by the Lederle Antitoxin Laboratories is prepared under U. S. Government license in strict compliance with the regulations of the United States Public Health Service. By the law of July 1, 1902, vaccine virus sold in interstate traffic in the United States must come from a licensed manufacturer. These licenses are issued by the Secretary of the Treasury only after a careful inspection of the plant, personnel, and product by a competent government officer. In accordance with an additional regulation issued by the Secretary of the Treasury March 13th, 1906, each lot of vaccine virus must be examined carefully by modern bacteriologic methods to determine the absence of pathogenic microorganisms.

TESTS: The following tests are made by the Lederle Antitoxin Laboratories on all Vaccine Virus in order to insure its safety and activity: (1) Green virus as harvested—before "aging"—is subjected to careful bacteriologic study. (2) In order to establish the potency and purity of the finished product, the backs of white rabbits are shaved and Vaccine Virus rubbed on the shaved area without scarification. Active virus will grow and cause characteristic vesicles in 3 or 4 days, and the animals recover without serious consequences. (3) The purity and safety of the finished product are further established by bacteriologic study and injections of the Glycerinated Vaccine Virus into guinea-pigs and white mice.

TECHNIQUE OF VACCINATION: Trivial and simple as the operation of vaccination appears, it is nevertheless a surgical procedure and one requiring skill and special knowledge to secure the most successful and satisfactory results. Moreover, the after-care of the wound is exceedingly important.

The arm, at the insertion of the deltoid muscle, is the safest site for vaccination, since it is more easily kept clean than the leg, especially in infants. The arm should, therefore, be chosen in males. In female children, if the leg be chosen in order to avoid a scar upon the arm, special care must be taken to keep the wound clean.

The hands of the operator, the instrument used, and the site of vaccination should be clean. In preparing the site of inoculation, use soap and water and dry with a clean towel. Ether or alcohol may be used, if allowed to evaporate before proceeding with the operation; otherwise the antiseptic may easily destroy the life of the virus. A single linear scratch about ⅛ of an inch long should be made with a sterile needle; the scratch should not penetrate the subcutaneous tissue, for, if bleeding occurs, virus rubbed into such an incised area will be washed away by the blood. Small scratches have the advantage of healing rapidly and of presenting less danger of secondary infections. Avoid scarifications or cross-scratching, as this method produces an abraded surface which is soon covered by a crust of serum and blood, leaving a central irritated wound which invites infection.

With the ivory point or orangewood stick rub the virus gently but thoroughly into the scratch, remembering that it requires time to properly perform this portion of the operation. In general, the less the skin is irritated the less is the danger of complications. Rubbing in of the virus is very important, and, with skilled vaccinators and good virus, every vaccination in a primary subject will take; while with unskilled vaccinators there are usually negative results, due generally to insufficient rubbing in of the virus, or to deep scratches causing bleeding which washes out the virus, or to scratches which are too superficial. After the virus has been applied and carefully rubbed in, the serum on the vaccinated area should be allowed to become thoroughly dry; the length of time which this takes will vary from fifteen minutes to one-half hour.

AFTER-CARE: After performing a vaccination, the physician should keep clearly in mind three important points: (1) Usually no dressing is necessary, but great care must be taken to keep the vaccinated arm or leg clean and to protect the vaccinated surface from dirty clothing and from infection by scratching or rubbing. For this purpose, an oblong piece of dry sterile gauze of two or three thicknesses may be loosely applied and retained by two strips of adhesive plaster, one applied around the arm well above and the other well below the vaccination. The gauze should be sufficiently large (2 by 3 inches) to prevent the adhesive strips from irritating the vaccinated area. The gauze protects the wound from external infection, and, where this method is followed, secondary infections practically never occur. (2) No protective dressing should be allowed to remain on the vaccinated area more than 24 hours at a time. The use of pads, plasters and shields of any sort is to be condemned because, by retaining heat and moisture, they cause softening and breaking down—in other words, they act as a poultice. (3) Vaccination is a surgical procedure and deserves the personal attention of the vaccinating physician on the third, seventh and ninth days at least.

Bathing need not be omitted, nor any of the ordinary occupations; but any unnecessarily excessive use of the vaccinated arm or leg must be guarded against, as this increases the congestion, inflammation, and the chances of infection.

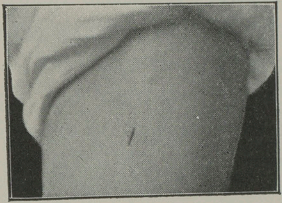
The primary wound soon heals, and no reaction occurs for three or four days: by the seventh day, the vesicle is usually full size; about the ninth or tenth day, the reaction begins to subside; by the twelfth day, the vesicle rapidly dries, leaving a brown, wrinkled scab which finally drops off. A normal scab forms the best protection and should not be removed. If infection of the wound occurs, it should be thoroughly cleansed, the scab being removed if necessary, and a wet dressing of warm 1 to 3,000 bichloride of mercury solution, frequently changed, should be applied.

DANGERS: The alleged danger from vaccination has been greatly magnified by antivaccinationists. The only danger lies in the fact that vaccination produces a wound, which is subject to the complications of any wound. Even a pin prick or a scratch may cause serious results. Most of the infections after vaccination occur in those in whom the regard for cleanliness is slight, and who neglect to properly protect the wound. In recent years, owing to the improved quality of the vaccine virus, the introduction of aseptic methods, and better after-care, serious complications are very rare. In any case, the danger connected with vaccination is infinitesimal when compared with the benefit conferred.

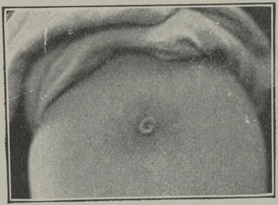
REVACCINATION: After a varying number of years, usually five or more, the immunity conferred by the primary vaccination is partially, or, less often, completely lost. Every person should, therefore, be revaccinated one or more times. A good rule is to vaccinate in infancy, again upon entering school, and thereafter at intervals of five years until adult life is reached. If small-pox appears in a community, all the inhabitants should at once be vaccinated except those who have been successfully vaccinated within one year.

It should be remembered and taught by physicians that systematic and successful revaccination is just as important for the protection of the individual and the community from small-pox as is a successful first vaccination.

SINGLE LINEAR SCRATCH ABOUT ⅛ INCH LONG, EXTENDING DOWN TO THE CORIUM BUT NOT DEEP ENOUGH TO CAUSE BLEEDING; READY TO BE INOCULATED WITH VACCINE VIRUS.



TYPICAL VACCINATION PRODUCED BY SINGLE LINEAR SCRATCH ABOUT ⅛ INCH LONG, WITH LEDERLE'S GLYCERINATED VACCINE VIRUS. TEN DAYS AFTER VACCINATION.



PACKAGES: Glycerinated Vaccine Virus prepared by the Lederle Antitoxin Laboratories is marketed in suitable containers convenient for the physician to use. These containers consist of soft wax tubes and glass capillary tubes packed singly or 10 in a box. Each soft wax tube is accompanied by a sterile needle with which to make the scratch; also a sterile Ivory Point with which to rub in the virus. With each capillary tube, there is a sterile needle for making the scratch; a small rubber bulb for transferring the virus from the capillary tube to the incised area; and an orange wood stick with which to rub in the virus.

The single packages of each kind of container are convenient for the physician to use in private practice. The packages containing 10 tubes are intended for the use of Boards of Health, health officers, school inspectors, hospitals and other institutions.

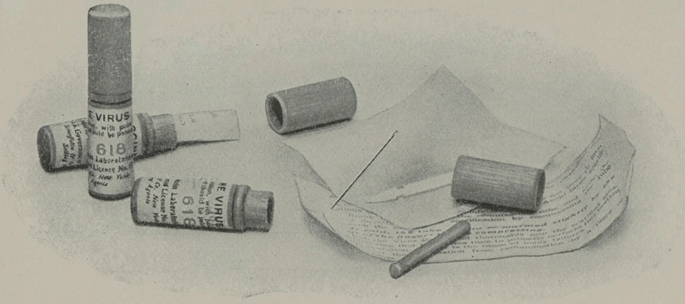
DIRECTIONS FOR USING LEDERLE'S VACCINE IN WAX TUBES, WITH IVORY POINTS AND NEEDLE.

NOTE. Ivory point and needle are ready for immediate use having been sterilized ***after*** *wrapping.*

A single linear scratch about 1/8 of an inch long should be made with a sterile needle, being careful not to penetrate the subcutaneous tissue. Avoid scarifications or cross scratching, as this method invites infection.

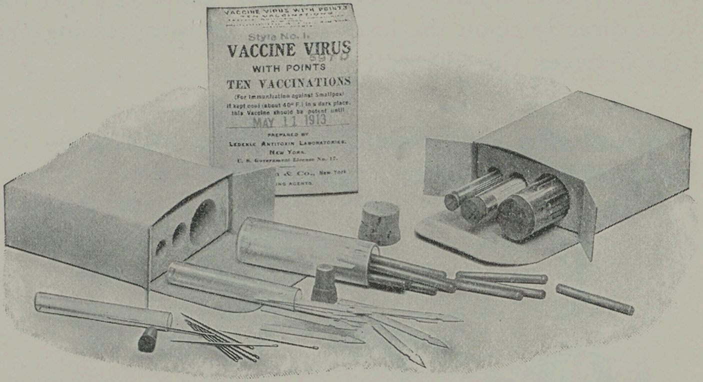
Break off one end of the compressible tube and expel the virus directly upon the incised area by compressing the tube between the fingers.

If cold, the tube should be warmed slightly by the heat of the fingers before compressing.



Style 0.—Package of ten wooden vials, each containing one vaccination in wax tube, with ivory point and needle.

Rub the Virus gently and thoroughly into the incised area, by means of the ivory point, remembering that it requires time to properly perform this portion of the operation. Haste is the cause of many failures. Protect the vaccination from contamination by a piece of sterile gauze for 24 hours, after which no protective dressing is preferred.


Style No. 1.
VACCINE VIRUS
5970
WITH POINTS
TEN VACCINATIONS
(For immunization against Smallpox)
If kept cool (about 40° F.) in a dark place, this Vaccine should be potent until
MAY 11 1913
PREPARED BY
LEDERLE ANTITOXIN LABORATORIES.
NEW YORK.
U. S. Government License No. 17.
& CO., New York
ING AGENTS.

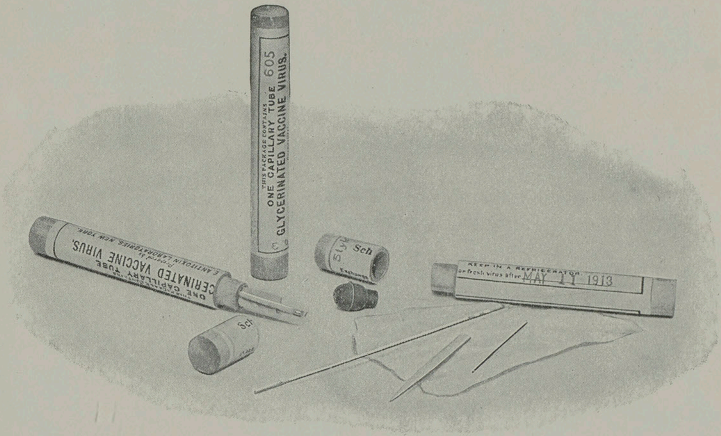
Style 1.—Package containing ten vaccinations, each in a wax tube packed in a separate glass vial; ten ivory points in a separate glass vial and ten needles in a separate glass vial.

DIRECTIONS FOR USING LEDERLE'S VACCINE IN GLASS CAPILLARY TUBES, WITH ORANGE WOOD STICKS AND NEEDLES.

NOTE. Orange wood stick and needle are ready for immediate use, having been sterilized ***after*** *wrapping.*

A single linear scratch about ⅛ of an inch long should be made with a sterile needle, being careful not to penetrate the subcutaneous tissue. Avoid scarifications or cross scratching, as this method invites infection.

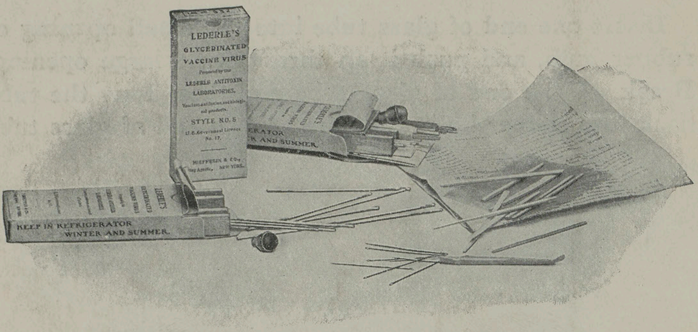
Insert one end of glass tube into the small opening of rubber bulb, and push it on through the large opening. Break off the end of glass tube and then draw the tube back into rubber bulb until the broken end of glass tube


THIS PACKAGE CONTAINS
ONE CAPILLARY TUBE 605
GLYCERINATED VACCINE VIRUS.
ONE CAPILLARY TUBE
CERINATED VACCINE VIRUS.
Prepared by
ANTITOXIN LABORATORIES, NEW YORK.
Sch
KEEP IN A REFRIGERATOR.
or fresh virus after MAY 11 1913

Style 3.—Wooden vial containing one vaccination in glass capillary tube; with needle, orange wood stick, and rubber bulb for expelling virus from tube.

is enclosed by the rubber bulb. Then break off the other end of glass tube. Cover the large opening of rubber bulb with finger tip and expel the Virus upon the incised area by compressing the rubber bulb.

Rub the Virus gently and thoroughly into the incised area, by means of the orange wood stick, remembering


LEDERLE'S
GLYCERINATED
VACCINE VIRUS
Prepared by the
LEDERLE ANTITOXIN
LABORATORIES.
STYLE NO. 5
U. S. Government License
No. 17.
HIEFFELIN & CO.,
NEW YORK.
KEEP IN REFRIGERATOR
WINTER AND SUMMER.
ERATOR
R AND SUMMER.

Style 5.—Package containing ten vaccinations, each in a glass capillary tube; ten needles, ten orange wood sticks, and one rubber bulb for expelling virus from tubes.

that it requires time to properly perform this portion of the operation. Haste is the cause of many failures. Protect the vaccination from contamination by a piece of sterile gauze for 24 hours, after which no protective dressing is preferred.

Lederle Antitoxin Laboratories, New York

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